11/5/86

ORIGINAL
(Red)

EPA POTENTIAL HAZARDOUS WASTE SITE IDENTIFICATION

REGION | SITE NUMBER: PAD 101671576

NOTE: The initial identification of a potential site or incident should not be interpreted as a finding of illegal activity or confirmation that an actual health or environmental threat exists. All identified sites will be assessed under the EPA's Hazardous Waste Site Enforcement and Response System to determine if a hazardous waste problem actually exists.

A. SITE NAME	B. STREET (or other identifier)		
U.S. Aluminum Lagoons	~~P.O. Box 8~~ HAZEL + BILLER STS		
C. CITY	D. STATE	E. ZIP CODE	F. COUNTY NAME
Marietta	PA	17547	Lancaster 071

G. OWNER/OPERATOR (if known)

1. NAME	2. TELEPHONE NUMBER
US Aluminum Corporation	(717) 426-1981

H. TYPE OF OWNERSHIP (if known)

☐ 1. FEDERAL ☐ 2. STATE ☐ 3. COUNTY ☐ 4. MUNICIPAL ☒ 5. PRIVATE ☐ 6. UNKNOWN

I. SITE DESCRIPTION

Lagoons or basins which may contain metal hydroxide sludges. The lagoons may be partly filled in or overgrown and may not be visible as depressions.

J. HOW IDENTIFIED (i.e., citizen's complaints, OSHA citations, etc.)	K. DATE IDENTIFIED (mo., day, & yr.)
Regional referral - DER investigation	9/17/86

L. SUMMARY OF POTENTIAL OR KNOWN PROBLEM

Contamination of groundwater and surface water

A related investigation and Preliminary Assessment was done for Wivell Quarry. US Aluminum may have disposed of metal hydroxide sludge in the quarry

PA-2087

M. PREPARER INFORMATION

1. NAME	2. TELEPHONE NUMBER	3. DATE (mo., day, & yr.)
Lori Davis	(717) [illegible]	9/17/86

EPA Form 2070-8 (5-80)

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DIVISION OF EMERGENCY & RE... RESPONSE
SEP 18 1986
Waste Management

VCFC Andin - 8/7/87

PENNSYLVANIA DER

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
Post Office Box 2063
Harrisburg, Pennsylvania 17120

ORIGINAL
(Red)

Bureau of Waste Management

Preliminary Assessment

FOR

U. S. ALUMINUM LAGOONS
PA #2087

City of Marietta
Lancaster County
Pennsylvania

Table of Contents

Section 13 Pa. DER Memo (dated 11/18/75) Addressing The Dewatering Lagoons

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Section 1

Narrative / Overview

The site is located at the southwest corner of the Borough of Marietta at Hazel & Biddle Sts., Lancaster County, Pennsylvania.

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The facility is a secondary smelter of aluminum. Wastes generated from this process include air emissions and slag. Prior to 1975, the air emissions were handled by a wet scrubber and the contaminated water went tothe public sewer. U.S. Reduction Company bought U.S. Aluminum in 1975 and installed a baghouse to handle the air emissions; currently the baghouse dust is shipped off site as a hazardous waste containing Cadmium and Lead.

Prior to 1976 the facility operated a slag washing operation to recover aluminum from the slag. Slag from the smelting process was washed with water to dissolve the soluble compoments. The insoluble components were put back into the furnace, The washwater was put into two earthen (unlined) dewatering impoundments; the waterand the soluble components ofthis washwater percolated into the surrounding soil. Insoluble residue would build up inthese impoundments, be periodically dredged, and then be disposed of at an unknown location.

In 1976, the company switched to using a dry recovery operation at another U.S. Reduction plant; the slag was then shipped off site to another plant. U.S. Reduction then closed the two surface impoundments. It is unknown whether or not the impoundments were dredged prior to closure. The impoundments were backfilled and are noe covered over with concrete vy the loading dock. Comapany records (see sections 9,10,11,12) indicate that the slag and slag washwater were not hazardous waste as defined by RCRA. Some of the slag is currently being stored in piles at the southwest corner of the plant; off site recovery operation had shut down for a while.

The Borough of Marietta has received complaint from nearby residents that that emissions from this plant are corroding the paint off their houses.

This may indicate problems with the air polution control equipment used by the facility and possible air, soil, and surface water contamination with Cadmiun and lead.

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The low assessment was not based on the lagoons since company records indicate that waste in lagoons was not a RCRA defined hazardous waste; the low assessment was based onthe alleged air emissions and possible air, soil, and surface water contamination.

Geology / Hydrology

The site is located in the floodplain of the Susquehanna River at the toe of a moderately steep slope from the north; the area of the facility itself is relatively flat. The area from Market St. slopes down to flat area where the lagoons were. The built up railroad bed on the south side of the facility acts as a dike/berm between the site and the River.

The site is underlain by an undetermined depth of sandy alluvium. The bedrock under the site is of the Vintage Formation. This is a dolomite formation with groundwater flow through solution channels.

Drinking Water

Drinking water for the area comes from privite wells and the Marietta Gravity Water Company. The Marietta Gravity Water Company services the borough of Marietta and a few large buildings north of Marietta on the south side of Route 441. The Marietta Gravity Water Company has the following sources of water:

- 3 groundwater wells located on west side of Route 441 in the village of Chickies, Lancaster County.
- Two reservoirs in Helem Township, York County which are fed by 52 springs in that area. The water from these reservoirs ispiped under the Susquehanna River.

Section 2

ORIGINAL (Red)

EPA

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
PA	2087

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site): U. S. Aluminum Lagoons

02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER: Hazal & Biddle Sts.

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Marietta	Pa.	17547	Lancaster	071	16

09 COORDINATES LATITUDE: 40°32'54". LONGITUDE: 076°33'30".

10 DIRECTIONS TO SITE (Starting from nearest public road)

Site located at south west corner of Marietta Borough off Market Street. Market Street intersects with Route 441 east of the Borough.

III. RESPONSIBLE PARTIES

01 OWNER (if known): U.S. Reduction Co.

02 STREET (Business, mailing, residential): 2025 175th Street

03 CITY	04 STATE	05 ZIP CODE	06 TELEPHONE NUMBER
Lansing	Ill.	60438	(800) 323-8760

07 OPERATOR (If known and different from owner): U.S. Aluminum Corp.

08 STREET (Business, mailing, residential): Hazel & Biddle Sts.

09 CITY	10 STATE	11 ZIP CODE	12 TELEPHONE NUMBER
Marietta	Pa.	17547	(717) 426-1981

13 TYPE OF OWNERSHIP (Check one)

☒ A. PRIVATE ☐ B. FEDERAL: ______ (Agency name) ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL

☐ F. OTHER: ______ (Specify) ☐ G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)

☐ A. RCRA 3001 DATE RECEIVED: __/__/__ MONTH DAY YEAR ☐ B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED: __/__/__ MONTH DAY YEAR ☐ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION

☒ YES DATE 3/19/87 (MONTH DAY YEAR)
☐ NO

BY (Check all that apply) ☐ A. EPA ☐ B. EPA CONTRACTOR ☒ C. STATE ☐ D. OTHER CONTRACTOR ☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER: ______ (Specify)

CONTRACTOR NAME(S): ______

02 SITE STATUS (Check one) ☐ A. ACTIVE ☐ B. INACTIVE ☐ C. UNKNOWN

03 YEARS OF OPERATION ______ BEGINNING YEAR ______ ENDING YEAR ☒ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED

Lagoons were operated from approx. 1970 until closure in 1976; company records indicate that waste that went into lagoons was not hazardous as defined by RCRA. Cd & Pb has been found in baghouse dust.

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION

Prior to 1975 the furnace emissions were handled by a wet scrubber and the water went to public sewer; in 1975 the baghouse was installed. Complaints received form neighbors that air emissions from plant are corroding paint on houses.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)

☐ A. HIGH (Inspection required promptly) ☐ B. MEDIUM (Inspection required) ☒ C. LOW (Inspect on time available basis) ☐ D. NONE (No further action needed, complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)		03 TELEPHONE NUMBER
Thomas Sheehan, Project Officer	Pa. DER, Div. Emergency & Remedial Response		(215) 565-1687

04 PERSON RESPONSIBLE FOR ASSESSMENT	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NUMBER	08 DATE
Thomas Sheehan, Project Officer	Pa. DER	Waste Management	(215) 565-1687	4/27/87

EPA FORM 2070-12 (7-81)

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EPA

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES *(Check all that apply)*

- [x] A. SOLID
- [x] B. POWDER, FINES
- [ ] C. SLUDGE
- [ ] D. OTHER ________ *(Specify)*
- [ ] E. SLURRY
- [ ] F. LIQUID
- [x] G. GAS

02 WASTE QUANTITY AT SITE *(Measures of waste quantities must be independent)*

TONS ________

CUBIC YARDS ________

NO. OF DRUMS ________

03 WASTE CHARACTERISTICS *(Check all that apply)*

- [x] A. TOXIC
- [ ] B. CORROSIVE
- [ ] C. RADIOACTIVE
- [ ] D. PERSISTENT
- [ ] E. SOLUBLE
- [ ] F. INFECTIOUS
- [ ] G. FLAMMABLE
- [ ] H. IGNITABLE
- [ ] I. HIGHLY VOLATILE
- [ ] J. EXPLOSIVE
- [ ] K. REACTIVE
- [ ] L. INCOMPATIBLE
- [ ] M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			Cd & Pb in baghouse dust

IV. HAZARDOUS SUBSTANCES *(See Appendix for most frequently cited CAS Numbers)*

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
MES	Cadmium	7440-43-9	Baghouse/off site		
MES	Lead		Baghouse/off site		

V. FEEDSTOCKS *(See Appendix for CAS Numbers)* NA

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

See section 7.

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POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
PA	2087

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☒ A. GROUNDWATER CONTAMINATION
03 POPULATION POTENTIALLY AFFECTED: ______
02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☒ ALLEGED
04 NARRATIVE DESCRIPTION

Groundwater contamination with residual waste material is probable from use of earthen dewatering impoundments; Company records indicate that waste was not hazardous as defined by RCRA.

01 ☒ B. SURFACE WATER CONTAMINATION
03 POPULATION POTENTIALLY AFFECTED: ______
02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☒ ALLEGED
04 NARRATIVE DESCRIPTION

Residual waste stored in piles on the ground; Company records indicate that this waste is not hazardous as defined by RCRA. Complaints received regarding air emissions; particulate matter may be contaminating surface water

01 ☒ C. CONTAMINATION OF AIR
03 POPULATION POTENTIALLY AFFECTED: ______
02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☒ ALLEGED
04 NARRATIVE DESCRIPTION

Marietta Borough has received complaints from nearby residences that emissions from the plant are corroding the paint off their houses.

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS
03 POPULATION POTENTIALLY AFFECTED: ______
02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None found by this investigation.

01 ☐ E. DIRECT CONTACT
03 POPULATION POTENTIALLY AFFECTED: ______
02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None found by this investigation.

01 ☒ F. CONTAMINATION OF SOIL
03 AREA POTENTIALLY AFFECTED: ? (Acres)
02 ☐ OBSERVED (DATE: ______) ☒ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Residual waste stored in earthed dewatering impoundments; Company records indicate that this waste wea not hazardous as defined by RCRA. Possible soil contamination from air emissions (Cd & Pb).

01 ☒ G. DRINKING WATER CONTAMINATION
03 POPULATION POTENTIALLY AFFECTED: ______
02 ☐ OBSERVED (DATE: ______) ☒ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

If surface water contamination has happened the Columbia Water Co. and City of Lancaster Water Authority surface intakes downstream on the Susquehanna River may be influenced.

01 ☐ H. WORKER EXPOSURE/INJURY
03 WORKERS POTENTIALLY AFFECTED: ______
02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None found by this investigation.

01 ☒ I. POPULATION EXPOSURE/INJURY
03 POPULATION POTENTIALLY AFFECTED: ______
02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☒ ALLEGED
04 NARRATIVE DESCRIPTION

Marietta borough has received complaints from nearby residences that air emissions from the plant are corroding the paint off their houses.

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EPA

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION
01 STATE: PA
02 SITE NUMBER: 2087

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☐ J. DAMAGE TO FLORA
02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None found by this investigation.

01 ☐ K. DAMAGE TO FAUNA
02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION (Include name(s) of species)

None found by this investigation.

01 ☐ L. CONTAMINATION OF FOOD CHAIN
02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None found by this investigation.

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES (Spills/runoff/standing liquids/leaking drums)
02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ______
04 NARRATIVE DESCRIPTION

Residual waste stored in piles; company records indicate that this waste is not hazardous as defined by RCRA.

01 ☒ N. DAMAGE TO OFFSITE PROPERTY
02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☒ ALLEGED
04 NARRATIVE DESCRIPTION

Marietta Borough has received complaints from nearbt residences that air emissions from the plant are corroding the paint off their houses.

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs
02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None found by this investigation.

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING
02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None found by this investigation.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

Alleged air emissions may contain Cd and Pb; may contaminate surface water, soil, or be inhaled directly.

III. TOTAL POPULATION POTENTIALLY AFFECTED: ______

IV. COMMENTS

Waste handled in the unlined surface impoundments was no hazardous (as defined by RCRA) according to company records.

V. SOURCES OF INFORMATION (Cite specific references, e. g., state files, sample analysis, reports)

See sections 7,8,9,10,11,12,13.

APPENDIX

I. FEEDSTOCKS

CAS Number	Chemical Name
1. 7664-41-7	Ammonia
2. 7440-36-0	Antimony
3. 1309-64-4	Antimony Trioxide
4. 7440-38-2	Arsenic
5. 1327-53-3	Arsenic Trioxide
6. 21109-95-5	Barium Sulfide
7. 7726-95-6	Bromine
8. 106-99-0	Butadiene
9. 7440-43-9	Cadmium
10. 7782-50-5	Chlorine
11. 12737-27-8	Chromite
12. 7440-47-3	Chromium
13. 7440-48-4	Cobalt
14. 1317-38-0	Cupric Oxide
15. 7758-98-7	Cupric Sulfate
16. 1317-39-1	Cuprous Oxide
17. 74-85-1	Ethylene
18. 7647-01-0	Hydrochloric Acid
19. 7664-39-3	Hydrogen Fluoride
20. 1335-25-7	Lead Oxide
21. 7439-97-6	Mercury
22. 74-82-8	Methane
23. 91-20-3	Napthalene
24. 7440-02-0	Nickel
25. 7697-37-2	Nitric Acid
26. 7723-14-0	Phosphorus
27. 7778-50-9	Potassium Dichromate
28. 1310-58-3	Potassium Hydroxide
29. 115-07-1	Propylene
30. 10588-01-9	Sodium Dichromate
31. 1310-73-2	Sodium Hydroxide
32. 7646-78-8	Stannic Chloride
33. 7772-99-8	Stannous Chloride
34. 7664-93-9	Sulfuric Acid
35. 108-88-3	Toluene
36. 1330-20-7	Xylene
37. 7646-85-7	Zinc Chloride
38. 7733-02-0	Zinc Sulfate

II. HAZARDOUS SUBSTANCES

CAS Number	Chemical Name
1. 75-07-0	Acetaldehyde
2. 64-19-7	Acetic Acid
3. 108-24-7	Acetic Anhydride
4. 75-86-5	Acetone Cyanohydrin
5. 506-96-7	Acetyl Bromide
6. 75-36-5	Acetyl Chloride
7. 107-02-8	Acrolein
8. 107-13-1	Acrylonitrile
9. 124-04-9	Adipic Acid
10. 309-00-2	Aldrin
11. 10043-01-3	Aluminum Sulfate
12. 107-18-6	Allyl Alcohol
13. 107-05-1	Allyl Chloride
14. 7664-41-7	Ammonia
15. 631-61-8	Ammonium Acetate
16. 1863-63-4	Ammonium Benzoate
17. 1066-33-7	Ammonium Bicarbonate
18. 7789-09-5	Ammonium Bichromate
19. 1341-49-7	Ammonium Bifluoride
20. 10192-30-0	Ammonium Bisulfite
21. 1111-78-0	Ammonium Carbamate
22. 12125-02-9	Ammonium Chloride
23. 7788-98-9	Ammonium Chromate
24. 3012-65-5	Ammonium Citrate, Dibasic
25. 13826-83-0	Ammonium Fluoborate
26. 12125-01-8	Ammonium Fluoride
27. 1336-21-6	Ammonium Hydroxide
28. 6009-70-7	Ammonium Oxalate
29. 16919-19-0	Ammonium Silicofluoride
30. 7773-06-0	Ammonium Sulfamate
31. 12135-76-1	Ammonium Sulfide
32. 10196-04-0	Ammonium Sulfite
33. 14307-43-8	Ammonium Tartrate
34. 1762-95-4	Ammonium Thiocyanate
35. 7783-18-8	Ammonium Thiosulfate
36. 628-63-7	Amyl Acetate
37. 62-53-3	Aniline
38. 7647-18-9	Antimony Pentachloride
39. 7789-61-9	Antimony Tribromide
40. 10025-91-9	Antimony Trichloride
41. 7783-56-4	Antimony Trifluoride
42. 1309-64-4	Antimony Trioxide
43. 1303-32-8	Arsenic Disulfide
44. 1303-28-2	Arsenic Pentoxide
45. 7784-34-1	Arsenic Trichloride
46. 1327-53-3	Arsenic Trioxide
47. 1303-33-9	Arsenic Trisulfide
48. 542-62-1	Barium Cyanide
49. 71-43-2	Benzene
50. 65-85-0	Benzoic Acid
51. 100-47-0	Benzonitrile
52. 98-88-4	Benzoyl Chloride
53. 100-44-7	Benzyl Chloride
54. 7440-41-7	Beryllium
55. 7787-47-5	Beryllium Chloride
56. 7787-49-7	Beryllium Fluoride
57. 13597-99-4	Beryllium Nitrate
58. 123-86-4	Butyl Acetate
59. 84-74-2	n-Butyl Phthalate
60. 109-73-9	Butylamine
61. 107-92-6	Butyric Acid
62. 543-90-8	Cadimium Acetate
63. 7789-42-6	Cadmium Bromide
64. 10108-64-2	Cadmium Chloride
65. 7778-44-1	Calcium Arsenate
66. 52740-16-6	Calcium Arsenite
67. 75-20-7	Calcium Carbide
68. 13765-19-0	Calcium Chromate
69. 592-01-8	Calcium Cyanide
70. 26264-06-2	Calcium Dodecylbenzene Sulfonate
71. 7778-54-3	Calcium Hypochlorite
72. 133-06-2	Captan
73. 63-25-2	Carbaryl
74. 1563-66-2	Carbofuran
75. 75-15-0	Carbon Disulfide
76. 56-23-5	Carbon Tetrachloride
77. 57-74-9	Chlordane
78. 7782-50-5	Chlorine
79. 108-90-7	Chlorobenzene
80. 67-66-3	Chloroform
81. 7790-94-5	Chlorosulfonic Acid
82. 2921-88-2	Chlorpyrifos
83. 1066-30-4	Chromic Acetate
84. 7738-94-5	Chromic Acid
85. 10101-53-8	Chromic Sulfate
86. 10049-05-5	Chromous Chloride
87. 544-18-3	Cobaltous Formate
88. 14017-41-5	Cobaltous Sulfamate
89. 56-72-4	Coumaphos
90. 1319-77-3	Cresol
91. 4170-30-3	Crotonaldehyde
92. 142-71-2	Cupric Acetate
93. 12002-03-8	Cupric Acetoarsenite
94. 7447-39-4	Cupric Chloride
95. 3251-23-8	Cupric Nitrate
96. 5893-66-3	Cupric Oxalate
97. 7758-98-7	Cupric Sulfate
98. 10380-29-7	Cupric Sulfate Ammoniated
99. 815-82-7	Cupric Tartrate
100. 506-77-4	Cyanogen Chloride
101. 110-82-7	Cyclohexane
102. 94-75-7	2,4-D Acid
103. 94-11-1	2,4-D Esters
104. 50-29-3	DDT
105. 333-41-5	Diazinon
106. 1918-00-9	Dicamba
107. 1194-65-6	Dichlobenil
108. 117-80-6	Dichlone
109. 25321-22-6	Dichlorobenzene (all isomers)
110. 266-38-19-7	Dichloropropane (all isomers)
111. 26952-23-8	Dichloropropene (all isomers)
112. 8003-19-8	Dichloropropene-Dichloropropane Mixture
113. 75-99-0	2-2-Dichloropropionic Acid
114. 62-73-7	Dichlorvos
115. 60-57-1	Dieldrin
116. 109-89-7	Diethylamine
117. 124-40-3	Dimethylamine
118. 25154-54-5	Dinitrobenzene (all isomers)
119. 51-28-5	Dinitrophenol
120. 25321-14-6	Dinitrotoluene (all isomers)
121. 85-00-7	Diquat
122. 298-04-4	Disulfoton
123. 330-54-1	Diuron
124. 27176-87-0	Dodecylbenzenesulfonic Acid
125. 115-29-7	Endosulfan (all isomers)
126. 72-20-8	Endrin and Metabolites
127. 106-89-8	Epichlorohydrin
128. 563-12-2	Ethion
129. 100-41-4	Ethyl Benzene
130. 107-15-3	Ethylenediamine
131. 106-93-4	Ethylene Dibromide
132. 107-06-2	Ethylene Dichloride
133. 60-00-4	EDTA
134. 1185-57-5	Ferric Ammonium Citrate
135. 2944-67-4	Ferric Ammonium Oxalate
136. 7705-08-0	Ferric Chloride

II. HAZARDOUS SUBSTANCES

ORIGINAL

CAS Number	Chemical Name
137. 7783-50-8	Ferric Fluoride
138. 10421-48-4	Ferric Nitrate
139. 10028-22-5	Ferric Sulfate
140. 10045-89-3	Ferrous Ammonium Sulfate
141. 7758-94-3	Ferrous Chloride
142. 7720-78-7	Ferrous Sulfate
143. 206-44-0	Fluoranthene
144. 50-00-0	Formaldehyde
145. 64-18-6	Formic Acid
146. 110-17-8	Fumaric Acid
147. 98-01-1	Furfural
148. 86-50-0	Guthion
149. 76-44-8	Heptachlor
150. 118-74-1	Hexachlorobenzene
151. 87-68-3	Hexachlorobutadiene
152. 67-72-1	Hexachloroethane
153. 70-30-4	Hexachlorophene
154. 77-47-4	Hexachlorocyclopentadiene
155. 7647-01-0	Hydrochloric Acid (Hydrogen Chloride)
156. 7664-39-3	Hydrofluoric Acid (Hydrogen Fluoride)
157. 74-90-8	Hydrogen Cyanide
158. 7783-06-4	Hydrogen Sulfide
159. 78-79-5	Isoprene
160. 42504-46-1	Isopropanolamine Dodecylbenzenesulfonate
161. 115-32-2	Kelthane
162. 143-50-0	Kepone
163. 301-04-2	Lead Acetate
164. 3687-31-8	Lead Arsenate
165. 7758-95-4	Lead Chloride
166. 13814-96-5	Lead Fluoborate
167. 7783-46-2	Lead Fluoride
168. 10101-63-0	Lead Iodide
169. 18256-98-9	Lead Nitrate
170. 7428-48-0	Lead Stearate
171. 15739-80-7	Lead Sulfate
172. 1314-87-0	Lead Sulfide
173. 592-87-0	Lead Thiocyanate
174. 58-89-9	Lindane
175. 14307-35-8	Lithium Chromate
176. 121-75-5	Malthion
177. 110-16-7	Maleic Acid
178. 108-31-6	Maleic Anhydride
179. 2032-65-7	Mercaptodimethur
180. 592-04-1	Mercuric Cyanide
181. 10045-94-0	Mercuric Nitrate
182. 7783-35-9	Mercuric Sulfate
183. 592-85-8	Mercuric Thiocyanate
184. 10415-75-5	Mercurous Nitrate
185. 72-43-5	Methoxychlor
186. 74-93-1	Methyl Mercaptan
187. 80-62-6	Methyl Methacrylate
188. 298-00-0	Methyl Parathion
189. 7786-34-7	Mevinphos
190. 315-18-4	Mexacarbate
191. 75-04-7	Monoethylamine

CAS Number	Chemical Name
192. 74-89-5	Monomethylamine
193. 300-76-5	Naled
194. 91-20-3	Naphthalene
195. 1338-24-5	Naphthenic Acid
196. 7440-02-0	Nickel
197. 15699-18-0	Nickel Ammonium Sulfate
198. 37211-05-5	Nickel Chloride
199. 12054-48-7	Nickel Hydroxide
200. 14216-75-2	Nickel Nitrate
201. 7786-81-4	Nickel Sulfate
202. 7697-37-2	Nitric Acid
203. 98-95-3	Nitrobenzene
204. 10102-44-0	Nitrogen Dioxide
205. 25154-55-6	Nitrophenol (all isomers)
206. 1321-12-6	Nitrotoluene
207. 30525-89-4	Paraformaldehyde
208. 56-38-2	Parathion
209. 608-93-5	Pentachlorobenzene
210. 87-86-5	Pentachlorophenol
211. 85-01-8	Phenanthrene
212. 108-95-2	Phenol
213. 75-44-5	Phosgene
214. 7664-38-2	Phosphoric Acid
215. 7723-14-0	Phosphorus
216. 10025-87-3	Phosphorus Oxychloride
217. 1314-80-3	Phosphorus Pentasulfide
218. 7719-12-2	Phosphorus Trichloride
219. 7784-41-0	Potassium Arsenate
220. 10124-50-2	Potassium Arsenite
221. 7778-50-9	Potassium Bichromate
222. 7789-00-6	Potassium Chromate
223. 7722-64-7	Potassium Permanganate
224. 2312-35-8	Propargite
225. 79-09-4	Propionic Acid
226. 123-62-6	Propionic Anhydride
227. 1336-36-3	Polychlorinated Biphenyls
228. 151-50-8	Potassium Cyanide
229. 1310-58-3	Potassium Hydroxide
230. 75-56-9	Propylene Oxide
231. 121-29-9	Pyrethrins
232. 91-22-5	Quinoline
233. 108-46-3	Resorcinol
234. 7446-08-4	Selenium Oxide
235. 7761-88-8	Silver Nitrate
236. 7631-89-2	Sodium Arsenate
237. 7784-46-5	Sodium Arsenite
238. 10588-01-9	Sodium Bichromate
239. 1333-83-1	Sodium Bifluoride
240. 7631-90-5	Sodium Bisulfite
241. 7775-11-3	Sodium Chromate
242. 143-33-9	Sodium Cyanide
243. 25155-30-0	Sodium Dodecylbenzene Sulfonate
244. 7681-49-4	Sodium Fluoride
245. 16721-80-5	Sodium Hydrosulfide
246. 1310-73-2	Sodium Hydroxide
247. 7681-52-9	Sodium Hypochlorite
248. 124-41-4	Sodium Methylate

CAS Number	Chemical Name
249. 7632-00-0	Sodium Nitrate
250. 7558-79-4	Sodium Phosphate, Dibasic
251. 7601-54-9	Sodium Phosphate, Tribasic
252. 10102-18-8	Sodium Selenite
253. 7789-06-2	Strontium Chromate
254. 57-24-9	Strychnine and Salts
255. 100-420-5	Styrene
256. 12771-08-3	Sulfur Monochloride
257. 7664-93-9	Sulfuric Acid
258. 93-76-5	2,4,5-T Acid
259. 2008-46-0	2,4,5-T Amines
260. 93-79-8	2,4,5-T Esters
261. 13560-99-1	2,4,5-T Salts
262. 93-72-1	2,4,5-TP Acid
263. 32534-95-5	2,4,5-TP Acid Esters
264. 72-54-8	TDE
265. 95-94-3	Tetrachlorobenzene
266. 127-18-4	Tetrachloroethane
267. 78-00-2	Tetraethyl Lead
268. 107-49-3	Tetraethyl Pyrophosphate
269. 7446-18-6	Thallium (I) Sulfate
270. 108-88-3	Toluene
271. 8001-35-2	Toxaphene
272. 12002-48-1	Trichlorobenzene (all isomers)
273. 52-68-6	Trichlorfon
274. 25323-89-1	Trichloroethane (all isomers)
275. 79-01-6	Trichloroethylene
276. 25167-82-2	Trichlorophenol (all isomers)
277. 27323-41-7	Triethanolamine Dodecylbenzenesulfonate
278. 121-44-8	Triethylamine
279. 75-50-3	Trimethylamine
280. 541-09-3	Uranyl Acetate
281. 10102-06-4	Uranyl Nitrate
282. 1314-62-1	Vanadium Pentoxide
283. 27774-13-6	Vanadyl Sulfate
284. 108-05-4	Vinyl Acetate
285. 75-35-4	Vinylidene Chloride
286. 1300-71-6	Xylenol
287. 557-34-6	Zinc Acetate
288. 52628-25-8	Zinc Ammonium Chloride
289. 1332-07-6	Zinc Borate
290. 7699-45-8	Zinc Bromide
291. 3486-35-9	Zinc Carbonate
292. 7646-85-7	Zinc Chloride
293. 557-21-1	Zinc Cyanide
294. 7783-49-3	Zinc Fluoride
295. 557-41-5	Zinc Formate
296. 7779-86-4	Zinc Hydrosulfite
297. 7779-88-6	Zinc Nitrate
298. 127-82-2	Zinc Phenolsulfonate
299. 1314-84-7	Zinc Phosphide
300. 16871-71-9	Zinc Silicofluoride
301. 7733-02-0	Zinc Sulfate
302. 13746-89-9	Zirconium Nitrate
303. 16923-95-8	Zirconium Potassium Fluoride
304. 14644-61-2	Zirconium Sulfate
305. 10026-11-6	Zirconium Tetrachloride

Section 3

FIELD TRIP SUMMARY REPORT

ORIGINAL (Red)

This summary should be prepared in conjunction with the Preliminary Assessment, EPA Form 2070-12.

EPA Case Number PA - 2087 Site Name U.S. Aluminum Lagoons

Site Description

Facility is located at the southwest corner of Marietta Bouough next to the north bank ofthe Susquehanna River. Facility is a secondary Aluminum Smelting operation; melting scrap Aluminum. Prior to 1975 air emissions were handled by a wet scrubber and waste from from this operation was sent to public sewer. Waste from slag washing operation was sent to two unlined dewatering impoundments. In 1975, U.S. Reduction Co. bought U.S. Aluminum. U.S Reduction replaced the wet scrubber with baghouse and also took the two surface impoundments out of service.

Area of site (acres)	Hazardous portion, if not entire site
Approx. 5 acres	Lagoons = 0.25 acre

Description of processes/operations which took place at the site

Facility melted scrap aluminum in furnace. Prior to 1975 air emissions were handled by a wet scrubber; was replaced by a bag house in 1975. Slag from the smelting operation washed with water to remove soluble components; insoluble material was put back into furnace. This recovery operation was replaced with a dry operation at another plant;the slag is shipped to other plant for recovery. The slag washing operation utilized two earthen dewatering impoundments at southeast corner of the property.

Waste handling/disposal practices

Waste from the wet scrubber was sent to the public sewer. Waste from the bag house is sent off site as a hazardous waste. Waste from the slag washing operation was sent to unlined dewatering impoundments; water and soluble components percolated into the surrounding soil; insoluble components were dredged out periodically and disposed of at undetermined location.

Site topography and runoff drainage pathways

Surface water drains onto the site from the north. The immediate vicinity of the site is relatively flat with surface water draining south towards Susquehanna River.

Surface or subsurface drainage areas (leachate) noted?

No.

Odors/stains noted?

No.

Stressed vegetation noted?

No.

Location and description of streams or receiving waters adjacent to site. Include flow direction and observations. Note location on attached map.

Susquehanna River is approx. 100 yd south ofthe site. The River flows in a west to east direction by the site.

Monitoring wells on site or in vicinity. Note location on attached map.

No.

Population within ¼ mile of site:

- ☐ 0-10
- ☐ 10-100
- ☒ greater than 100

Population within 1 mile of site:

- ☐ 0-10
- ☐ 10-100
- ☐ 100-1000
- ☒ greater than 1000

ORIGINAL (Red)

Surrounding land use (woodlot, agricultural, recreation, industrial, etc.)

NORTH Residential	EAST Residential
SOUTH Floodplain; River	WEST Residential Military installation

Municipal water supply within 3-mile radius (note use of surface water and/or wells)

Two municipal water supply surface intakes downstream on the Susquehanna River: Columbia Water Company has surface intake at 2nd St. in Columbia, City of Lancaster Water Authority has surface intake just south of Columbia.

Reference:

Domestic wells. Approximate number within ¼ mile: None found

List nearest wells below and show locations on attached map.

Owner/Resident	Address	Phone

Groundwater flow direction, if known

Description of odor/taste problems

State inspection activity (including permits held)

DER Bureau of Water Quality involved in closure of the surface impoundments in 1970's.

State/Federal/Private remedial activities

Impoundments closed by U.S. Reduction and are now covered over with concrete by the loading dock.

Additional comments--Further description of site

According to company records (see sections 9,10,11,12) the waste that were put into the surface impoundments were not hazardous as defined by RCRA. ORIGINAL (Red)
The Borough of Marietta has received complaint from nearby residences that air emissions fron this facility are corroding the paint off their houses. The waste collected in the baghouse has been found to contain Cd and Pb.

Thie low ranking was given to this site for the possible air emissions and possible soil & surface water contamination by these emissions (Cd & Pb). An assessment of none would have been given just for the surface impuondments due to the waste being non-hazardous as defined by RCRA; although, contamination of groundwater with residual waste is probable.

SITE CONTACTS

Name and Title	Affiliation	Phone
Thomas Hendon, Dir. Env./Manufacturing Serv.	US Reduction	(800)323-8760
Al Reinhart, Plant Manager	U.S. AlCO	(717)426-1981

See section 7 for additional sources of information.

INSPECTION INFORMATION

Name and title of inspector(s) Thomas Sheehan, Project Officer

Agency Pa. DER, Div. Emergency & Remedial Response   Phone number (215)565-1687

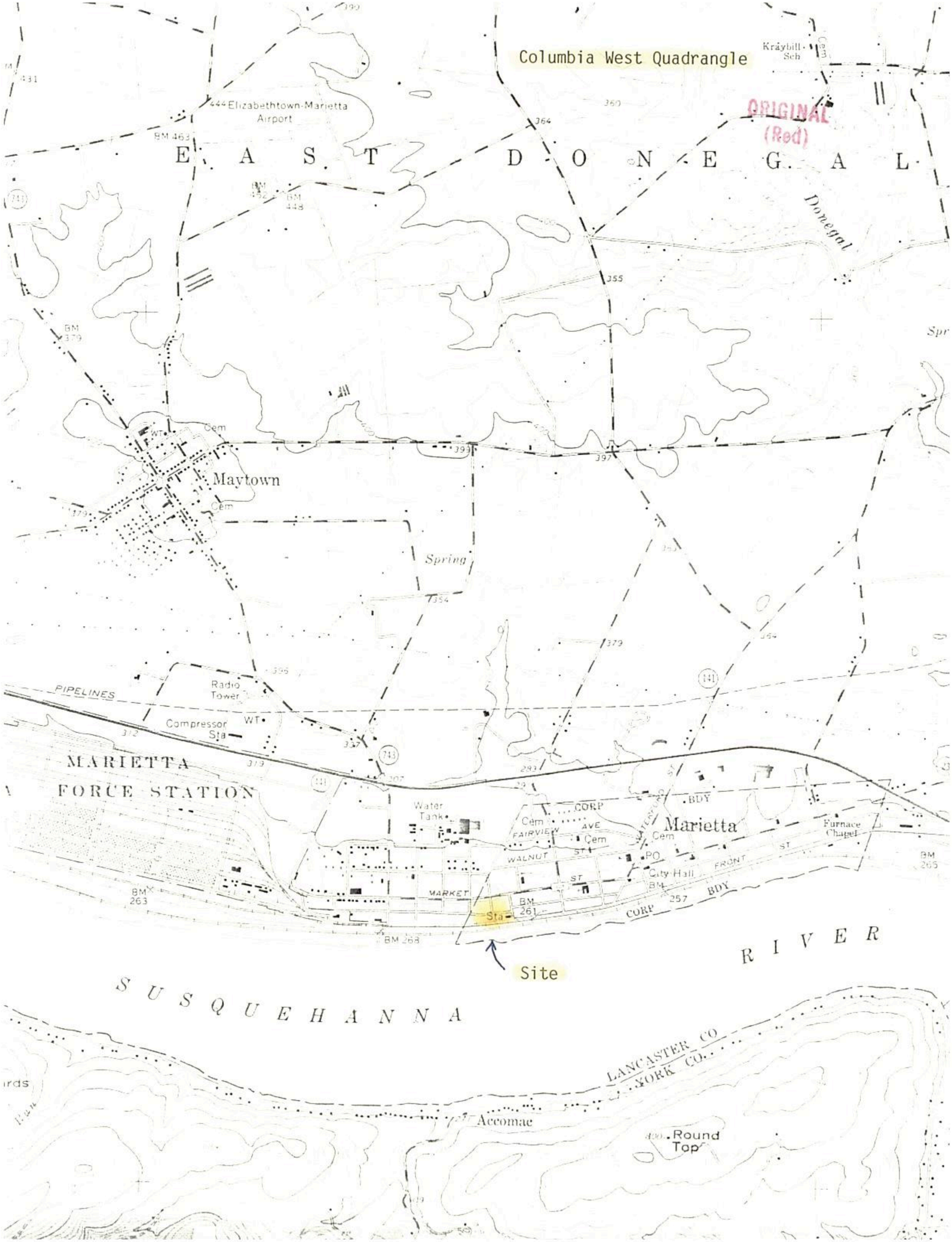
Date 3/19/87   Time on site 5 hour

Weather conditions: Clear, sunny, seasonal temperature.

ATTACHMENTS

- o Topographic map identifying site location. Include name of quadrangle map.
- o Site sketch map showing location of monitoring wells, domestic wells, municipal water supplies, and areas of concern (lagoons, leachate seeps, drums, etc.)
- o Any available sampling results or state monitoring data with map showing sample locations.

Section 4



Columbia West Quadrangle
ORIGINAL (Red)
Kraybill Sch
444 Elizabethtown-Marietta Airport
BM 463
E A S T D O N E G A L
Donegal
Maytown
Cem
Spring
Radio Tower
PIPELINES
Compressor Sta
MARIETTA AIR FORCE STATION
Water Tank
Marietta
Furnace Chapel
FAIRVIEW AVE
WALNUT ST
MARKET ST
FRONT ST
City Hall
PO
Sta
BM 261
CORP BDY
Site
S U S Q U E H A N N A R I V E R
LANCASTER CO
YORK CO
Accomac
Round Top

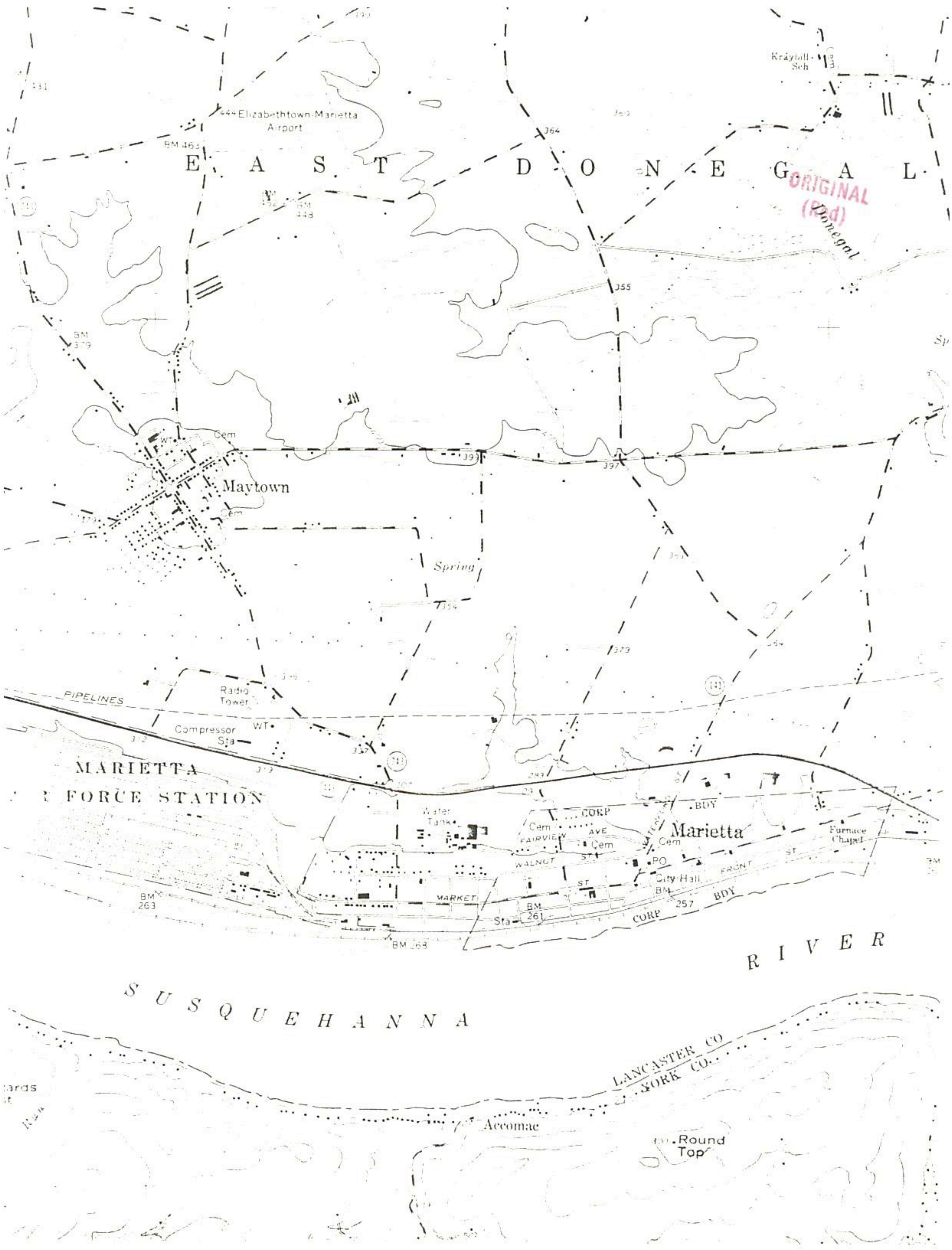
Section 5

Residential Area
Biddle St.
Residential Area
North
Market St
ORIGINAL (Red)
Residential Area
Jones St.
Guard House
Building
Residential Area
Hazel St
Offices
Building
Old Lagoons
Bridge St
Residential Area
Front St.
Current Piles of Slag
Railroad Tracks
Susquehanna River

ORIGINAL
(Red)

Section 6

Area Serviced by Matietta Gravity Water Company



Kraybill Sch
Elizabethtown-Marietta Airport
E A S T D O N E G A L
ORIGINAL (Red)
Donegal
Maytown
Cem
Spring
Radio Tower
PIPELINES
Compressor Sta
WT
MARIETTA
FORCE STATION
Water Tank
Marietta
Cem
CORP
BDY
FAIRVIEW
AVE
WALNUT
ST
PO
City Hall
FRONT
MARKET
Sta
Furnace Chapel
R I V E R
S U S Q U E H A N N A
LANCASTER CO
YORK CO
Accomac
Round Top

Section 7

Sources of Information:

ORIGINAL
(Red)

Commonwealth of Pennsylvania
Department of Environmental Resources
Region 3 Files
One Ararat Blvd.
Harrisburg, Pa. 17110

Recorder of Deeds
Lancaster County Courthouse
Duke & Orange Sts.
Lancaster, Pa. 17603

Lancaster County Planning Commission
Lancaster County Courthouse
Duke & Orange Sts.
Lancaster, Pa. 17603

On site visit 3/19/87 By:
Thomas Sheehan, Project Officer
Commonwealth of Pa. Department of Environmental Resources
Division of Emergency & Remedial Response,Bureau of Waste Management

U.S. ALCO
Hazel & Biddle Sts.
Marietta, Pa. 17547

Marietta Borough
Market Street
Marietta, Pa. 17547
(717) 426- 4143

Marietta Gravity Water Company
Donnegal Insurance Building
Marietta, Pa. 17547
(717)429-1931

USGS 7.5 Minute Quadrangle Topographic — Columbia West Quadrangle Rev. 1972

Lancaster City Water Authority
PO Box 1599 Duke Street
Lancaster, Pa. 17603

Columbia Water Company
220 Locust Street
Columbia, Pa.

Sources of Information - People Interviewed:

Nancy Parker, Senior Environmental Planner
Lancaster County Planning Commission
Lancaster County Courthouse
Duke and Orange Sts.
Lancaster, Pa. 17603

Al Reinhart, Plant Manager
U.S. ALCO (Division of U.S. Reduction)
Hazel and Biddle Streets
Marietta, Pa. 17547
(717)426-1981

Thomas Hendon
Corporate Manager of Environmental Response
U.S. Reduction
Munster, Indiana
1-800-323-8760

William Budding
Administrative Assistant Council
Marietta Bouough
Market Street
Marietta, Pa. 17547
(717)426-1981

Miriam Lenhart. Superintendant
Marietta Gravity Water Company
Donnegal INsurance Building
Matietta, Pa. 17547
(717)429-1931

Section 8

Tom Hendon 1 of 2 Pages

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF WASTE MANAGEMENT
One Ararat Boulevard
Harrisburg, Pennsylvania 17110
(717) 657-4588
December 10, 1985

ORIGINAL (Red)

Mr. Al Reinhart
Plant Manager
U.S. Aluminum Corporation
P.O. Box 8
Marietta, PA 17547-0008

Re: Wivell Quarry
East Donegal Township
Lancaster County

Dear Mr. Reinhart:

During an investigation of past waste disposal activities at the Wivell Quarry, evidence was uncovered indicating that an industrial waste stream from U.S. Aluminum was deposited here. The following information is requested in order to complete a preliminary assessment of this site.

1. Records of the quantities of waste and dates of deposition.

2. Specific source of the waste and analyses or expected constituents.

3. Identity of the waste transporter, if not U.S. Aluminum.

4. Description of the waste handling or disposal practices employed at the quarry.

5. Copies of any contracts or agreements with the quarry's owner.

Please supply this information by December 20, 1985.

There are several sources of the statutory authority for requesting this information. The Resource Conservation and Recovery Act, 42 U.S.C. Section 6933, authorizes Pennsylvania to obtain information concerning the amount, nature, and toxicity of the hazardous substances which may have been stored or disposed of at any time. The Comprehensive Environmental Response Compensation

72 Flood records destroyed

Storage Area - above Bunch

2 of 2

ORIGINAL
(Red)

and Liability Act ("Superfund") also authorizes the Department to obtain this information. Sections 103 and 104 of the Superfund Act, 42 U.S.C. Sections 9603 and 9604 authorize the state to obtain and require persons who have stored or disposed of hazardous substances to furnish information relating to such substances as specified in those sections. Finally, the Pennsylvania Solid Waste Management Act, 35 P.S. Section 6018.104, 6018.502(f) and 6018.608 authorizes the Department to obtain information concerning storage and disposal of solid waste.

If you have any questions concerning this matter, please feel free to contact me.

Sincerely,

G L Harder

Gregory L. Harder
Solid Waste Specialist
Harrisburg Regional Office

GLH:flw

ORIGINAL
(Red)

Section 9

CC: Thomas Sheehan 4/21/87

DEPARTMENT OF ENVIRONMENTAL RESOURCES

APR 24 1987

DELAWARE COUNTY OFFICE

U.S. REDUCTION CO.

2025 175th STREET LANSING, ILLINOIS 60438

(312) 895-9400
TELEX: 206669

ALUMINUM ALLOYS FOR EVERY PURPOSE

ORIGINAL (Red)

January 2, 1986

Mr. Gregory L. Harder
Commonwealth of Pennsylvania
Department of Environmental Resources
Bureau of Waste Management
One Ararat Boulevard
Harrisburg, PA 17110

Dear Mr. Harder:

This letter is in response to your letter to Mr. Al Reinhart dated December 10, 1985 and our telephone conversation of December 16, 1985 regarding the disposal activities at the Wivell Quarry. We appreciated the extension to January 8, 1986 to respond to your information request.

It is our understanding that the grab sample taken from the Wivell Quarry contained high quantities of total metals(i.e. cadmium, lead, copper, aluminum, magnesium, chromium, iron, manganese, etc...). Also, when the sample was run for E. P. toxicity the only metal that would constitute a potential hazard in accordance with R.C.R.A. was selenium.

You mentioned that there were records showing U. S. Aluminum Corp. disposed of dust in the Wivell Quarry in 1976. The Company has not found any records to indicate that it made waste deposits at the Wivell Quarry.

After the acquisition of U. S. Aluminum Corp. by U. S. Reduction Co., an agreement with the Pennsylvania D.E.R. was entered into to shutdown the wet mill operation along with removal of the material which had accumulated on the company's property from this operation. This material consisted of a dust pile. Presently there are no records to ascertain the disposition of this pile.

If it is assumed for the sake of discussion that some of this dust was disposed of at Wivell Quarry, the information in answer to you questions is as follows:

1. There are no records of the quantity of waste and dates of deposition.

ORIGINAL (Red)

2. There is no analysis of this material per se(see analysis discussion at end of letter).

3. Identity of the waste transporter is not known.

4. We do not know about the waste handling or disposal practices employed at the Quarry.

5. After a diligent search, we have been unable to find copies of any contract or agreement with the Quarry's owner.

I would like to offer the following background information on the wet mill operation along with analyses of the slags in our industry, and work done with the Aluminum Recycling Association on Secondary Aluminum High Salt Slag which resulted in removing from the R.C.R.A. Hazardous Listing.

WET MILL OPERATION:

O.H. Slag known also as High Salt Slag and sometimes Aluminum Dross Slag is a basic mixture of Aluminum Oxide 40-55%, Sodium Chloride, and Potassium Chloride at 35-40%, and Aluminum Metal at 10-15%. The purpose of the wet mill is to concentrate the aluminum metal so it can be recycled to the furnace for recovery. The wet mill does this by washing/disolving the soluable sodium and potassium salts freeing up the aluminum and breaking by tumbling and reducing the insoluable oxides to a smaller size fraction that can be carried away with the wash water. The oversize concentrate is screened out and dried. The water effluent with the dissolved salts and suspended solids were discharged to a settling lagoon, where the soluable salts as total dissolved solids percolated through the ground underlying the lagoons. As the lagoons filled up with undissolved suspended solids, they were dredged out. The residue dust was piled until disposed of.

It would be apparent that the brine leaching process would have leached out most of the leachables leaving inert aluminum oxide residue containing a minor concentration of aluminum metal approximating 1-3% by weight.

In my telephone conversation with you, you indicated a R.C.R.A. E.P. toxicity was run on the Quarry sample and the only toxic substance according to R.C.R. A. was Selenium that exceeded the limitations. In all of the R.C.R.A. E.P. toxicity leach tests we've conducted on our O.H. slag, selenium has never been found in any significant concentration.

As you know, there is a trace amount of selenium in our furnace baghouse dust. This is most likely due to concentrating by vaporization.

ORIGINAL
(Red)

at the melting furnace operating at 1450^{o} F and condensing back to a particulate captured by the baghouse. These baghouse dusts analyzed for E.P. toxic metals have never exceeded RCRA for selenium.

The following analytical information is itemized below and enclosed for your records on U. S. Aluminum Corp:

1. Analysis of Secondary Aluminum Smelting Waste Products for U. S. Reduction Co. by Van Note-Harvey 1979(Excerpts of Corporate Report). NOTE: The RCRA proposed limitations during this report is now ten(10) times greater as the promulgated standard.

2. I.U. Conversion study analyses(Excerpts from "Waste Management Assessment for U. S. Reduction Co. Marietta, Pennsylvania 1979). NOTE: The RCRA Standard limitations are ten(10) times greater. Also note that Mix 2 and Mix 8 would have included baghouse dust and other I.U. Conversions waste and/or additives.

3. Aluminum Recycling Associations work and report got the Federal EPA to delist the Secondary Aluminum Industry "High Salt Slag" from the Hazardous Waste Listing.

A copy of this report is enclosed. Note also that this work was done before the final regulations were promulgated, therefore, the limitations then should be multiplied by ten(10) to yield the present standard today.

I hope this information will help you in your preliminary assessment of the Wivell Quarry. If I can be of any further help, please don't hesitate to contact me at (312) 895-9400 ext. 283.

Respectfully,

U. S. REDUCTION CO.

Thomas R. Hendon

Thomas R. Hendon, P.E.
Director Environmental/Manufacturing
Services

TRH/jah
Enclosures

Section 10

ITEM 1

ORIGINAL (Red)

ANALYSIS OF SECONDARY ALUMINUM
SMELTING WASTE PRODUCTS
FOR
U. S. REDUCTION COMPANY

Prepared for
U. S. Reduction Company
East Chicago, Indiana 46312

Prepared by
Van Note-Harvey Associates
Consulting Engineers and
Environmental Laboratories

1531 North Main Street
Blacksburg, Virginia 24060

September 26, 1979

TABLE V-1

U. S. Reduction Slag and Dust Waste Samples

LOCATION	TYPE WASTE MATERIAL	PRODUCTION DATA
Marietta, Pennsylvania	High salt slag	Six ladles taken of hot slag from Furnaces 1, 2, and 3 at USALCO. Represents 2,429 lbs. slag. Sent 6/15/79
Fontana, California	High salt slag	Ten ladles of hot slag taken from Furnaces 51 and 52. Represents 12,460 lbs. slag. Sent 6/15/79
Toledo, Ohio	High salt slag	Thirty-five ladles of hot slag taken from 7 alloys on Furnaces 23, 25 and 26. Represents 10,500 lbs. slag. Sent 6/18/79
Alton, Illinois	High salt slag	Twelve ladles of hot slag taken from Furnaces 2, 7 and 8. Represents 12 slag pans or 18,000 lbs. slag. Sent 6/15/79
Alton, Illinois	Mesh dust pile	Composite cross section sample taken by J. Gordon. Sent 7/13/79
East Chicago, Indiana	High salt slag	Ten ladles of hot slag taken from Furnaces 1, 2, and 3, and broken up hot to split on ½" riffle. Represents 17,500 lbs. slag. Sent 6/13/79
East Chicago, Indiana	Mesh dust, East Chicago plant	Representative composite sample from Lot 386. Represents 100,455 lbs. of slag. Sample weight 2168 grams. Sent 6/14/79
East Chicago, Indiana	Mesh dust, Reynolds-McCook	Representative composite sample of 3 truck lots from primary supplier. Represents 115,390 lbs. of slag. Sample weight 400 grams. Sent 6/14/79
Russellville, Alabama	High salt slag	Twelve ladles taken from Furnaces 36, 37, and 38. Represents 18,000 lbs. of slag. Sent 6/15/79
Russellville, Alabama	Mesh dust, milled 6/14/79	Representative composite sample from Lot 0589 sampled from tote boxes on 6/14/79. Represents 73,739 lbs. of slag.
Russellville, Alabama	Mesh dust, Main Old Pile	Composite sample taken the week of 7/9/79 from old leached dust pile.
Russellville, Alabama	Mesh dust, New Pile	Composite sample taken the week of 7/9/79 from current dust pile.

TABLE V-2

Comparison of Four Extractions of Alton Mesh Dust Pile

Contaminant	Extract #1	Extract #2	Extract #3	Extract #4	Mean and Standard Deviation
	Extract Levels (mg/l)				
Arsenic	0.001	0.002	<0.001	<0.001	NA
Barium	3.4	0.50	0.70	0.52	1.28 ± 1.42
Cadmium	<0.02	<0.02	<0.02	<0.02	NA
Chromium	0.16	0.10	0.24	0.14	0.16 ± 0.06
Lead	0.30	0.25	0.32	0.24	0.28 ± 0.04
Mercury	0.001	0.001	<0.001	<0.001	NA
Selenium	<0.001	<0.001	<0.001	<0.001	NA
Silver	<0.04	<0.04	<0.04	<0.04	NA
Zinc	7.5	6.0	11.2	7.1	8.10 ± 2.1
Copper	6.8	6.4	10.8	6.4	7.6 ± 2.1
Nickel	0.40	0.20	0.40	0.28	0.32 ± 0.10
Sodium	53	58	14	10	34 ± 25
Potassium	12	15	26	21	19 ± 6
Magnesium	410	160	290	160	255 ± 120
Chloride	70	50	110	80	78 ± 25
Amount of Acetic Acid Required to Stabilize pH (ml)	238	159	154	157	

Note: NA - Not applicable since levels are below detectable limit.

ORIGINAL (Red)

TABLE V-3

Comparison of Three Digested Aliquots of Original Extract of Alton Mesh Dust Pile

Contaminant	Extract Levels (mg/l) Digestion #1	Digestion #2	Digestion #3	Mean and Standard Deviation
Arsenic	<0.001	<0.001	<0.001	NA
Barium	3.4	0.9	0.9	1.7 ± 1.4
Cadmium	<0.02	<0.02	<0.02	NA
Chromium	0.16	0.15	0.13	0.15 ± 0.02
Lead	1.20	0.30	0.40	0.6 ± 0.5
Selenium	<0.001	<0.001	<0.001	NA
Silver	<0.04	<0.04	<0.04	NA
Zinc	7.5	7.4	7.2	7.4 ± 0.15
Copper	6.8	7.1	6.7	6.9 ± 0.2
Nickel	0.40	0.40	0.45	0.42 ± 0.03
Sodium	53	44	50	49 ± 5
Potassium	12	14	15	14 ± 1.5
Magnesium	410	290	250	320 ± 80

NA - Not applicable since levels are below detectable limit.

ORIGINAL
(Red)

TABLE V-4

Extraction Procedure Results

Control Sample Test of Leaching from Extraction Equipment

Contaminant	Extract Level, mg/l
Arsenic	<0.001
Barium	<0.25
Cadmium	<0.02
Lead	<0.05
Mercury	<0.001
Selenium	<0.001
Silver	<0.01
Zinc	<0.01
Copper	<0.05
Nickel	<0.05

ORIGINAL (Red)

TABLE V-6

Extraction Procedure Results

Marietta, Pennsylvania

High Salt Slag

Contaminant	Extract Level mg/l	Allowable Extract Level Under EPA Proposed Regulations, mg/l X10
Arsenic	0.002	0.50
Barium	2.6	10.0
Cadmium	< 0.02	0.10
Chromium	< 0.05	0.50
Lead	0.06	0.50
Mercury	< 0.001	0.02
Selenium	< 0.001	0.10
Silver	< 0.04	0.50
Zinc	< 0.1	---
Copper	< 0.05	---
Nickel	< 0.05	---
Sodium	4830	---
Potassium	4410	---
Magnesium	530	---
Chloride	9540	---

Note: ---No limit currently specified by EPA.

TABLE V-7

Extraction Procedure Results

Fontana, California
High Salt Slag

Contaminant	Extract Levels (mg/l) Extract #1	Extract #2	Extract #3	Allowable Extract Level Under EPA Proposed Regulations, mg/l X10
Arsenic	<0.001	0.001	<0.001	0.50
Barium	3.3	*	*	10.0
Cadmium	<0.02	<0.02	<0.02	0.10
Chromium	<0.05	*	*	0.50
Lead	<0.05	*	*	0.50
Mercury	0.028	<0.001	<0.001	0.02
Selenium	<0.001	<0.001	<0.001	0.10
Silver	<0.04	<0.04	<0.04	0.50
Zinc	0.7	0.2	0.2	---
Copper	<0.05	<0.05	<0.05	---
Nickel	<0.05	<0.05	<0.05	---
Sodium	5600	*	*	---
Potassium	3730	*	*	---
Magnesium	990	*	*	---
Chloride	10,300	*	*	---

Note: ---No limit currently specified by EPA.
*Parameter not rechecked.

TABLE V-8

Extraction Procedure Results

ORIGINAL (Red)

Toledo, Ohio

High Salt Slag

Contaminant	Extract Level mg/l	Allowable Extract Level Under EPA Proposed Regulations, mg/l X 10
Arsenic	0.003	0.50
Barium	5.0	10.0
Cadmium	<0.02	0.10
Chromium	<0.05	0.50
Lead	0.10*	0.50
Mercury	<0.001	0.02
Selenium	<0.001	0.10
Silver	<0.01	0.50
Zinc	1.0	---
Copper	0.10	---
Nickel	0.18	---
Sodium	5390	---
Potassium	3940	---
Magnesium	340	---
Chloride	9500	---

Note: ---No limit currently specified by EPA.
*Average value of two separate extracts.

TABLE V-9

Extraction Procedure Results

ORIGINAL (Red)

Alton, Illinois

High Salt Slag

Contaminant	Extract Level mg/l	Allowable Extract Level Under EPA Proposed Regulations, mg/l X 10
Arsenic	<0.001	0.50
Barium	6.7	10.0
Cadmium	<0.02	0.10
Chromium	0.03	0.50
Lead	0.25	0.50
Mercury	<0.001	0.02
Selenium	<0.001	0.10
Silver	<0.04	0.50
Zinc	5.8	---
Copper	0.07	---
Nickel	0.19	---
Sodium	6800	---
Potassium	4820	---
Magnesium	210	---
Chloride	10,000	---

Note: ---No limit currently specified by EPA.

TABLE V-10

ORIGINAL (Red)

Extraction Procedure Results

Alton, Illinois

Mesh Dust Pile

Contaminant	Extract Level mg/l	Allowable Extract Level Under EPA Proposed Regulations, mg/l X10
Arsenic	<0.001	0.50
Barium	3.4	10.0
Cadmium	<0.02	0.10
Chromium	0.10	0.50
Lead	0.3*	0.50
Mercury	0.001	0.02
Selenium	<0.001	0.10
Silver	<0.04	0.50
Zinc	7.5	---
Copper	6.8	---
Nickel	0.4	---
Sodium	53	---
Potassium	12	---
Magnesium	410	---
Chloride	70	---
Sulfate	130	---
Total Dissolved Solids	2810	---

Note: ---No limit currently specified by EPA.
*Average of four separate extracts.

TABLE V-11

Extraction Procedure Results

East Chicago, Indiana

High Salt Slag

ORIGINAL (Red)

Contaminant	Extract Level mg/l	Allowable Extract Level Under EPA Proposed Regulations, mg/l X 10
Arsenic	< 0.001	0.50
Barium	1.8	10.0
Cadmium	< 0.02	0.10
Chromium	0.05	0.50
Lead	0.2	0.50
Mercury	< 0.001	0.02
Selenium	< 0.001	0.10
Silver	< 0.01	0.50
Zinc	10.0	---
Copper	0.5	---
Nickel	0.2	---
Sodium	4710	---
Potassium	3440	---
Magnesium	300	---
Chloride	7100	---

Note: ---No limit currently specified by EPA.

(Red)

TABLE V-12

Extraction Procedure Results

East Chicago, Indiana

Mesh Dust

-East Chicago Plant-

Contaminant	Extract Level mg/l	Allowable Extract Level Under EPA Proposed Regulations, mg/l X 10
Arsenic	0.004	0.50
Barium	7.3	10.0
Cadmium	< 0.02	0.10
Chromium	<0.05	0.50
Lead	<0.05	0.50
Mercury	0.002	0.02
Selenium	<0.001	0.10
Silver	<0.04	0.50
Zinc	3.2	---
Copper	0.15	---
Nickel	0.16	---
Sodium	4050	---
Potassium	4620	---
Magnesium	230	---
Chloride	10,000	---

Note: ---No limit currently specified by EPA.

TABLE V-13

Extraction Procedure Results

East Chicago, Indiana

Mesh Dust

-Reynolds-McCook-

Contaminant	Extract Level mg/l	Allowable Extract Level Under EPA Proposed Regulations, mg/l X10
Arsenic	< 0.001	0.50
Barium	0.7	10.0
Cadmium	< 0.02	0.10
Chromium	< 0.05	0.50
Lead	< 0.05	0.50
Mercury	< 0.001	0.02
Selenium	< 0.001	0.10
Silver	< 0.04	0.50
Zinc	11.6	---
Copper	0.38	---
Nickel	< 0.05	---
Sodium	815	---
Potassium	482	---
Magnesium	780	---
Chloride	1520	---

Note: ---No limit currently specified by EPA.

ORIGINAL
(Red)

TABLE V-14

Extraction Procedure Results

Russellville, Alabama

High Salt Slag

Contaminant	Extract Level mg/l	Allowable Extract Level Under EPA Proposed Regulations, mg/l X10
Arsenic	< 0.001	0.50
Barium	2.2	10.0
Cadmium	< 0.02	0.10
Chromium	0.15	0.50
Lead	0.15	0.50
Mercury	0.002	0.02
Selenium	< 0.001	0.10
Silver	< 0.04	0.50
Zinc	1.7	---
Copper	0.05	---
Nickel	0.05	---
Sodium	5700	---
Potassium	4000	---
Magnesium	110	---
Chloride	10,000	---

Note: ---No limit currently specified by EPA.

TABLE V-15

Extraction Procedure Results

Russellville, Alabama

Mesh Dust

-MILLED 6/14/79-

Contaminant	Extract Level mg/l	Allowable Extract Level Under EPA Proposed Regulations, mg/l X10
Arsenic	< 0.001	0.50
Barium	3.3	10.0
Cadmium	< 0.02	0.10
Chromium	< 0.05	0.50
Lead	0.25	0.50
Mercury	< 0.001	0.02
Selenium	< 0.001	0.10
Silver	< 0.04	0.50
Zinc	2.3	---
Copper	0.27	---
Nickel	0.12	---
Sodium	4260	---
Potassium	4110	---
Magnesium	100	---
Chloride	8600	---

Note: ---No limit currently specified by EPA.

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TABLE V-10

Extraction Procedure Results

Russellville, Alabama

Mesh Dust

-Main Old Pile-

Contaminant	Extract Level mg/l	Allowable Extract Level Under EPA Proposed Regulations, mg/l X10
Arsenic	0.002	0.50
Barium	1.1	10.0
Cadmium	0.056	0.10
Chromium	< 0.05	0.50
Lead	0.10	0.50
Mercury	0.003	0.02
Selenium	< 0.001	0.10
Silver	< 0.01	0.50
Zinc	2.2	---
Copper	4.1	---
Nickel	0.02	---
Sodium	320	---
Potassium	223	---
Magnesium	240	---
Chloride	430	---

Note: ---No limit currently specified by EPA.

TABLE V-17

Extraction Procedure Results

Russellville, Alabama

Mesh Dust

-New Pile-

Contaminant	Extract Level mg/l	Allowable Extract Level Under EPA Proposed Regulations, mg/l X 10
Arsenic	< 0.001	0.50
Barium	1.7	10.0
Cadmium	< 0.02	0.10
Chromium	< 0.05	0.50
Lead	0.2	0.50
Mercury	0.001	0.02
Selenium	< 0.001	0.10
Silver	< 0.04	0.50
Zinc	4.2	---
Copper	9.1	---
Nickel	0.28	---
Sodium	483	---
Potassium	195	---
Magnesium	135	---
Chloride	700	---

Note: ---No limit currently specified by EPA.

Section 11

ITEM 2

ORIGINAL
(Red)

WASTE MANAGEMENT ASSESSMENT

FOR

U.S. REDUCTION COMPANY

MARIETTA, PENNSYLVANIA

IU Conversion Systems, Inc.
115 Gibraltar Road
Horsham, Pa. 19044

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TABLE V

ASTM (A) LEACHATE ANALYSIS

Parameter	Baghouse Dust	$MgCl_2$ Slag	FCE(OH) Slag	Mix 2	Mix 8	RCRA Standard X 10
pH	4.2	10.1	9.9	8.5	6.89	–
TDS	108,476	28,648	162,197	15,030	96,700	–
Ag	.25	<.05	.05	<.05	.14	0.50
As	.44	.02	.02	.01	.21	0.50
Ba	<.10	<.10	<.10	<.10	.70	10.0
Cd	45.0*	<.01	<.01	<.01	5.40*	0.10
Cr	0.23	<.05	<.05	<.05	.10	0.50
Cu	–	–	–	–	.25	–
Fe	–	–	–	–	.69	–
Hg	.0020	<.0010	<.0010	<.0010	.001	0.02
Mn	–	–	–	–	3.07	–
Pb	17.6*	<.05	<.05	<.05	1.28*	0.50
Se	<.01	<.01	.01	.13*	<.05	0.10
Zn	–	–	–	–	1.26	–

Results reported in ppm except pH

* Exceeds RCRA Standard for Toxic Waste

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Section 12

ITEM 3

ORIGINAL
(Red)

FIGURE 2.02

Statement of the Aluminum Recycling Association
In Response to a Notice of Proposed
Rule-Making Under Section 3001 of the
Solid Waste Disposal Act, As Amended
by the Resource Conservation and
Recovery Act of 1976.

Submitted to the Office of Solid Waste
U.S. Environmental Protection Agency
Washington, D.C. 20460

March 16, 1979

RM Cooperman

Richard M. Cooperman

Executive Director
Aluminum Recycling Association
900 - 17th Street, N.W.
Washington, D.C. 20006
(202) 785-0550

The Aluminum Recycling Association represents most of the production capacity of the aluminum recycling firms in this country. Member companies range from divisions of some of the nation's largest companies to medium-sized and small, family-owned businesses. Over 5,000 people are employed in the nearly 45 industrial plants operated by these firms.

One thing in common to these member firms is their commitment to maximizing the useful life of the world's steadily diminishing mineral reserves through the recycling of aluminum. As such, the values of the industry are fully consonant with the goals of the Resource Conservation and Recovery Act: mineral recovery through recycling, environmental protection through conservation of virgin mineral sources, and energy conservation and economic benefits through re-use of existing sources.

Section 1002 of the Act, 42 U.S.C. 6901, provides in part:

> "(c) Materials.--The congress finds with respect to materials, that--
>
> > "(1) millions of tons of recoverable material which could be used are needlessly buried each year;
> > "(2) methods are available to separate usable materials from solid waste; and
> > "(3) the recovery and conservation of such materials can reduce the dependence of the United States on foreign resources and reduce the deficit in its balance of payments.
>
> "(d) Energy.--The Congress finds with respect to energy, that--
>
> > "(1) solid waste represents a potential source of solid fuel, oil, or gas that can be converted into energy;
> > "(2) the need exists to develop alternative energy sources for public and private consumption in order to reduce our dependence on such sources as petroleum products, natural gas, nuclear and hydroelectric generation; and
> > "(3) technology exists to produce usable energy from solid waste."

Today, aluminum recycling is one of the pre-eminent environmental industries in the United States. Approximately 75 recycling plants throughout the country re-process aluminum scrap - from industrial waste to used cars - into clean and re-usable metal. Thus, the industry converts what would otherwise constitute a solid waste disposal problem of great magnitude for communities across the land, not to mention an ecological eyesore of gross proportions, into economically, socially and environmentally desirable use. The success of the industry, measured by its annual sales between 700 and 800 million dollars, exposes the myth that the economy and the environment are mutually exclusive values.

Most of the recycling plants in operation today utilize only high-grade aluminum scrap with little attendant waste. However, between 25 and 35% of total secondary aluminum produced in this country each year involves the recovery of low-grade aluminum scrap through a process known as dross smelting. Recycling of the low-grade scrap, which generally contains between 10 and 30% aluminum, requires a two-step smelting process to maximize the metal recovery. The original smelting, which is performed in reverbatory furnaces, recovers approximately 75% of the aluminum content in the scrap; the dross waste is itself later recycled in a second process which increases the metal recovery to approximately 96-97%. A few plants, which generally utilize the lowest grade aluminum scrap, use rotary furnaces; the rotary process is similar to the reverbatory, except that generally only one recycling is necessary to produce between 95-96% metal recovery. The rotary process also produces a dross slag concentrated in larger-sized aggregate chunks than the more traditional reverbatory process. In both processes, fluxing agents and alloying agents are charged with the scrap and later recovered by dissolution in water or as a flux salt. Much of this is later recycled as a steel melting flux cover agent, while other additional material is sold to the cement industry. The major source of solid waste arises from both the impure constituents in the enriched dross and the salt flux used in the smelting process. Arguably the aluminum dross smelting process is among the most environmentally laudable, in that it results in the valuable mineral recovery of what clearly would otherwise line our waste land-fills, not to mention our roadsides.

The environmental pre-eminence of the industry, however, is threatened by the recent proposed rules issued by EPA pursuant to Sections 3001, 3002 and 3004 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act. These proposed rules, as explained below, incorrectly classify secondary aluminum dross smelting as an industrial process which results in the generation of hazardous waste (high salt slag plant residue). As a listed "hazardous waste", the proposed rules, if approved, will subject the industry to prohibitively expensive regulation such as to result in significant recycling plant closures and, thereby, a net <u>decrease</u> in overall environmental benefit.

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(Red)

FIGURE 2.02

Section 1004(5) of the Act, 42 U.S.C. 6903, defines "hazardous waste" as:

> A solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical or infectious characteristics may--
>
> (a) cause or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or
>
> (b) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.

In order to provide guidance to producers as to whether their waste is hazardous, Section 3001(a) of the Act, 42 U.S.C. 6921, authorizes the Administrator of EPA to promulgate rules to identify the criteria for identifying the characteristics of and for listing hazardous waste. Section 3001(b) then provides two mechanisms for determining whether a waste is hazardous: a set of characteristics of waste and a list of particular hazardous wastes.

In its proposed rules, EPA has identified several characteristics of hazardous waste (ignitability, corrosivity, toxicity, radioactivity, infectiousness, phytotoxicity, and teratogenicity and mutagenicity) and has set scientific standards respectively. A waste is identified as hazardous either because it exhibits one of the above characteristics at a level above the set standard or because it appears on the list of hazardous waste. Both particular wastes and sources or classes of waste streams appear on the hazardous waste list. Section 250.12(b) of the proposed rules provides that a solid waste, or source or class of waste be listed if the waste:

(1) possesses any of the characteristics identified in proposed 40 C.F.R. §250.13, and/or

Figure 2.02

ORIGINAL (Red)

extract of which contains certain contaminants at a level equal to or above ten times the EPA National Interim Primary Drinking Water Standards for the respective substances.

I. Secondary Aluminum Dross Smelting Does Not Produce Contaminants Above the EPA Standards for Hazardous Waste, Does Not Meet the Statutory Definition of Hazardous Waste, And Therefore Should be Taken Off the List of Hazardous Wastes.

Section 250.14 of the proposed rules provides that a listed hazardous waste shall not be considered hazardous if it can be demonstrated, pursuant to procedures under Section 250.15, that the Administrator's basis for listing the waste does not meet the criteria for listing under Section 250.12(b). The Aluminum Recycling Association recently contracted with Herron Testing Laboratories, Inc. of Cleveland, Ohio, for analysis of a representative sampling of high salt slag plant residue from five aluminum recycling plants utilizing dross smelting reprocessing procedures. The overwhelming weight of evidence from this analysis indicates that the waste generated by secondary aluminum dross smelting does not reach the standards proposed by EPA to establish toxicity. The analysis is appended at the end of this statement.

The data is summarized as follows:

(1) The proposed rules establish a maximum allowable toxicity for silver as 0.50 mg/l in the waste extract. The level of toxicity for the tested samples ranged from a low of less than 0.01 mg/l to a high of 0.08 mg/l, a maximum of 16% of the allowable standard.

(2) The proposed rules establish a maximum allowable toxicity for barium as 10.0 mg/l. The level of toxicity for the tested samples ranged from a low of less than 1.0 mg/l to a high of 5.5, a maximum of 55% of the allowable standard.

(3) The proposed rules establish a toxic standard for cadmium as 0.10 mg/l. The tested samples ranged from a low of 0.03 mg/l to a high of 0.07, a maximum of 73% of the allowable standard.

(4) The proposed rules establish a toxic standard for arsenic as 0.50 mg/l. The tested samples ranged from a low of less than 0.001 mg/l to a high of 0.004, a maximum of .8% of the allowable standard.

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(5) The proposed rules establish a toxic standard for mercury as 0.02 mg/l. The tested samples ranged from a low of less than 0.0002 mg/l to a high of 0.0007, a maximum of .035% of the allowable standard.

(6) The proposed rules establish a toxic standard for selenium as 0.10 mg/l. The tested samples uniformly ranged below 0.01 mg/l.

(7) The proposed rules establish a toxic standard for chromium as 0.50 mg/l. The tested samples ranged from a low of less than 0.02 mg/l to a high of 0.13, a maximum of 26% of the allowable standard.

(8) The Proposed rules establish as a toxic standard of 0.50 mg/l for lead. Exclusive of one sample of aluminum scrap waste which is discussed below, the tested samples generally meet the toxic standards by wide margins. While 10 test runs of plant sites A-D averaged less than 0.18 mg/l of lead, or less than 36% of the proposed EPA standard, the first sample taken at Plant E (Lab. No. 7266) tested out at levels significantly higher than the EPA proposed standard. Further inquiry disclosed the following pertinent facts: (1) Plant E utilized a rotary furnace, in contradistinction to Plants A-D, as well as to the vast majority of plants throughout the industry, and, for economic reasons, did not re-process the slag dross produced from the initial smelting. (2) Plant E, like most rotary furnace operations, utilized low-grade aluminum scrap, including high lead content non-magnetic fines of auto-shredded scrap.

The above facts are pertinent because they strongly suggest that the initial sample taken at Plant E is clearly an aberration and should not be taken as representative of an entire industry which generally produces waste well within the EPA proposed guidelines. This conclusion is supported by a second sampling taken at Plant E (Lab. No. L8369), eliminating the non-magnetic auto-shredded scrap. In addition, the new dross was further crushed into -20 mesh, a particle size roughly equivalent to the dross produced in standard reverbatory operations. The retested dross was found to be well within the EPA proposed standards, with the two additional test runs leveling out at 0.11 mg/l and 0.08 mg/l of lead, respectively, or an average of less than 20% of the allowable standard. It is suggested that, were rotary furnace operations, such as Plant E, to process a higher grade of aluminum scrap, or in the alternative, to crush its smelted waste to the same particle size as the slag dross produced from reverbatory operations, they too would consistently meet the proposed EPA criteria.

ORIGINAL (Red)

Moreover, even EPA's own data does not appear to support listing of the industry as a generator of hazardous waste. The 1977 CALSPAN Study, which served as the basis of EPA's proposed action in this matter, cited the industry as producing high levels of lead and chromium in its waste. However, apparently only one sampling of high salt slag was taken at a single site, which tested out at 0.24 mg/l of lead (less than half of the allowable standard) and 1.5 mg/l of chromium. As discussed above, the Herron Laboratories analysis conducted at five different sites did not disclose a single sample to be above the proposed EPA toxic standard for chromium; in fact, out of 12 separate test runs, the highest concentration of chromium amounted to only 26% of the allowable standard. Clearly, the CALSPAN date, which is taken from a single source and which does not even violate the proposed lead standard, cannot be used to justify regulation of an entire industry.

Finally, it should be emphasized that while rotary furnace operations are the distinct minority in the industry, they perform a valuable environmental and waste recovery function. Utilizing low grade scrap which would otherwise go unrecovered, the Plant E-type rotary operations do the "dirty work" in the industry that no one else would touch. They are also the most marginally profitable. As such, they should be encouraged and given special consideration, not driven out of business by prohibitive regulation.

Clearly the overwhelming weight of the evidence, as indicated by the Herron Laboratories test findings, does not support the proposed EPA finding that the entire secondary aluminum dross smelting industry be listed as a generator of hazardous waste. In the face of this additional technical data, it would be arbitrary and unreasonable to so conclude. The one lab sample which tested above the proposed standard for lead must simply be viewed as an aberration - insufficient by itself to subject an entire industry to costly regulation; the inequity of the result becomes even more compelling when it is recognized that single step rotary furnace operations which utilize low grade aluminum scrap perform a socially and environmentally desirable function which would otherwise be neglected. Accordingly, the ARA respectfully requests that secondary aluminum dross smelting - high salt slag plant residue be taken off of the list of hazardous wastes in any final rules promulgated.

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II. The Burden of Compliance With the Hazardous Waste Regulations Would Disrupt the Cost-Effectiveness of Low-Grade Aluminum Recycling, Force Plant Closures and Lay-Off of Employees, Result in Reduced Recycling of Aluminum Scrap, and Reduce Net Environmental Protection.

In 1978, the secondary aluminum industry produced nearly 2.5 billion pounds, or approximately 1.1 million metric tons, of specification aluminum alloy out of industrial and consumer waste scrap. The industry, which accounts for a quarter of the country's aluminum needs, takes billions of pounds of scrap out of the waste streams and recycles it into ingots for later die casting and foundry uses. Recycled aluminum eventually finds itself in manufactured automobile parts, tools, machinery and other consumer goods.

There are important economic environmental and conservation advantages to recycling aluminum. The per unit costs are substantially less than for the production of primary aluminum. By definition, the recycling industry furthers environmental values, by converting ecological eyesores and other waste problems into clean metal and useful products. Moreover, the industry is fully consonant with our national goals of energy conservation, by utilizing only 5% of the energy per unit of aluminum as required by the primary industry.

The secondary aluminum industry also conserves other important raw materials. To produce one ton of primary aluminum, the following materials are required: 4 tons of bauxite, 1000 pounds of soda, 250 pounds of lime, 1500 pounds of petroleum coke and pitch, 60 pounds of cryolite, 80 pounds of aluminum fluoride, and 14,000 kilowatts of electricity. To produce one ton of secondary aluminum requires none of the above constituent elements and only 700 kilowatts of electricity.

The environmental efficiency of the industry is further enhanced by the nature of the recycling process. Not only is primary waste and scrap processed, but the <u>resulting waste</u> of the initial recycling in the standard reverbatory operation is itself <u>re-processed</u> in an attempt to maximize aluminum recovery.

As in any industrial process, the recycling of aluminum scrap results in waste, which is called sludge or dross. The dross is composed of the constituent elements of the original scrap, plus aluminum residue which could not be recovered in the initial smelting process. The dross produced by reverbatory furnaces is then further processed to increase the aluminum yield. The secondary dross, together with recovered fluxing and alloying agents, combine to produce a high-salt slag dross residue.

ORIGINAL (Red)

This resulting waste is then stored in large slag piles, most of which are located on the recycling premises. A small percentage of the dross is sold to the cement industry for further productive use, certain flux salts are themselves recycled into steel smelting flux cover agents, and other chemicals are also recovered for later commercial uses. But while the industry is moving towards zero waste recycling, the complete recovery of materials from the dross is neither economically nor technically feasible at the present time.

The amount of unrecovered dross which remains as waste is significant. According to one CALSPAN Study commissioned by EPA, 1400 Kg. of dross waste is produced for every 1000 Kg. of recycled aluminum. Thus the dross waste disposed of in 1978 alone is estimated at 1.5 million metric tons, with accumulated waste stored at approximately 75 plant sites across the United States conservatively estimated at over 10 million metric tons. For example, one company estimates that its 14 acres of dross contains over 160,000 metric tons at one plant site alone, which increases at a rate of 300 metric tons for each day of plant operation.

The cost of compliance with even part of EPA's proposed hazardous waste regulations for the disposal of such large volumes of high-salt slag dross would be prohibitive and would result in significant plant closures and reduced recycling of secondary aluminum. While most dross piles are sited far away from public drinking water sources, few are lined with clay or lime. The cost of constructing lined land fills to meet EPA specifications would vary, depending upon location and the availability of required materials. In South Carolina, where clay is plentiful and land is cheap, one small company has estimated it would cost approximately $35,000 a year to capitalize and maintain a clay-lined pit for prospective use. In a more typical situation, an Illinois company estimated an annual capital cost of $200,000 for an EPA-approved pit, without account for increased operating expenditures.

Construction of lined land fills, however, may not be feasible due to flood plain constraints, insufficient land capacity or the inability to meet all of the EPA specifications. In that case, recycling companies would have to find a chemically treated sanitary land fill which would accept their dross. Assuming that such land fills can be located (one plant in California identified such a facility, but was unable to transport the waste due to legal difficulties in crossing state lines), the costs here would be even more prohibitive. Transportation costs alone have been estimated at between $3.50 and $11.00 per ton, depending upon distance and mode of transfer; the cost of actually dumping the dross would of course raise these figures substantially. In the Midwest, for example, plants have been advised of dumping costs at qualified facilities ranging between $7 and $30 per ton, exclusive of transportation. The only EPA-qualified land fill in South Carolina offered the recycler in that state a price of $66 per ton, which calculated to a total disposal cost of $900,000 a year; the quoted figure would have been more than enough to force the plant to close. Thus if the industry were forced to utilize chemically treated sanitary land fills exclusively, the disposal costs for 1978 alone, at South Carolina prices, could amount to as high as $75 million.

Removal and disposal of presently stored wastes could add as much as an additional $666 million, assuming that such land fill capacity could be located. Alternatively, the waste piles can be sealed, but the cost of such a disposal method would also be prohibitive. One plant in California considered having its 14 acre slag pile covered in concrete to avoid the annual maintenance cost. The lowest estimate was over $1.25 million.

While the above costs by themselves are extraordinarily prohibitive for such large volumes of waste, cost data on complete compliance with all additional proposed hazardous waste regulations is not available at the present time. It is important to note, however, that these costs cannot be considered in a vacuum. The secondary aluminum industry is composed of many small-sized companies dependent on low margin operations for their survival. Despite the recent emphasis on recycling and product conservation, few companies in the last five years have succeeded in making a profit, while most have not; some companies have failed to meet the margin and gone out of business altogether. The cost of compliance with EPA's proposed hazardous waste regulations and the introduction of expensive waste management systems would particularly burden the smaller-sized or marginal companies in the industry. Lacking the capitalization and financial stability of its sister companies in the primary aluminum industry, many ARA plants would simply be forced to stop operations. This conclusion is supported by EPA's own commissioned studies.

A 1973 study on the economic impact of similar proposed regulations, also prepared by the CALSPAN Corporation, concluded that "application of environmental regulations to the industry may increase capital requirements and minimum efficient size to such an extent that some smaller firms may exit from the industry, leading to increased concentration. The same regulations might also serve to raise the capital requirements barrier to entry into the secondary industry."

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EPA's own Draft Economic Impact Analysis, Subtitle C, Resource Conservation and Recovery Act, indicates that the presently proposed regulations would have a significantly adverse economic impact on the secondary aluminum industry. The study, prepared by Arthur D. Little, Inc., estimated that the annual cost of hazardous waste management could range from a low of over $10 million to a high of approximately $50 million. The ADL study concluded that industry compliance with the EPA hazardous waste program would result in either "probable" or "likely" plant closures, depending on the severity of the final regulations promulgated.

The evidence, as discussed in Section I, clearly does not justify the listing of the secondary aluminum industry as a generator of hazardous waste. The evidence becomes even more compelling when it is realized that compliance with the proposed regulations would force environmentally desirable companies out of business altogether. Thus the minimal benefits to be gained by subjecting an essentially clean industry to prohibitive regulation would be heavily outweighed by the substantial environmental benefits lost as a result of compliance.

The equities cry out for a more common sensible approach to the industry. Accordingly, the ARA respectfully requests that secondary aluminum dross smelting - high salt slag plant residue be taken off the list of hazardous wastes in any final rules promulgated.

APPENDIX

Summary of report of
Herron Testing Laboratories, Inc.
Cleveland, Ohio

Environmental Protection Agency (EPA) proposed regulations and guidelines are set forth in detail in the Federal Register of Monday, December 18, 1978 Part IV (Vol. 43, No. 243), pages 58946 thru 59028.

One of the wastes proposed to be hazardous is defined as "Secondary Aluminum Dross Smelting - High Salt Slag Plant Residue", SIC 3341. The basis for the proposed regulation to include this material depends on the amount of toxic elements that could be leached into the environment by natural processes. The proposed regulations list eight toxic metals. The toxic elements (Pg. 58956 in the cited Fed. Reg.) and their not to exceed concentrations are:

Element	Symbol	Not to exceed concentration mg/l in the extract X10
Arsenic	As	0.50
Barium	Ba	10.0
Cadmium	Cd	0.10
Chromium	Cr	0.50
Lead	Pb	0.50
Mercury	Hg	0.02
Selemium	Se	0.10
Silver	Ag	0.50

Approved methodology as set forth in the Federal Register was followed.

Briefly, the extraction procedure consisted of treating 100 grams of slag with specific amounts of water and acetic acid for 24 hours within specific temperature limits (20° - 40° C). The resulting extract was then analyzed for the previously mentioned toxic elements by atomic absorption spectrophotometry (AA) and are expressed as milligrams per liter (mg/l) in the extract.

Five (5) member companies of the ARA shipped representative samples of their "High Salt Slag Residues" for evaluation.

The five (5) companies were designated by letters A thru E.

Each sample was analyzed at least twice, i.e., extracts were made on two (2) each 100 gram portions and are reported as run 1

ORIGINAL (Red)

and run 2. In some cases a third run was made and is reported as run 3.

One company (E) when apprised of their slag analysis submitted another sample (E-2) which is a slag from the same process but deleting non-magnetic fines of auto-shredder scrap. Further the dross sample submitted was crushed to -20 mesh, approximately the same particle size as the samples submitted by Plants A thru D.

The analytical data is attached.

March 6, 1979

Company	A		B			C		D		
Lab No.	L 6323		L 7121			L 7184		L 7194		
Run No.	#1	#2	#1	#2	#3	#1	#2	#1	#2	#3
Element Max allowed in parentheses										
mg/l X 10										
Ag (.50)	0.02	0.04	0.08	0.01		0.05	0.08	<0.01	<0.01	
Ba (10.0)	5.5	5.1	1.2	1.7		4.7	3.0	1.0	2.3	
Cd (0.10)	<0.05	<0.05	<0.05	<0.05		<0.05	<0.05	0.03	0.07	
As (0.50)	<0.001	0.002	0.001	0.001		0.002	0.001	<0.001	<0.001	
Hg (0.02)	<0.0002	0.0002	0.0004	0.0003		0.0004	0.0003	0.0004	0.0007	
Se (0.10)	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01	<0.01	<0.01	
Cr (0.50)	0.07	0.07	0.04	0.08		0.02	0.07	<0.02	0.08	
Pb (0.50)	0.06	0.06	0.06	0.45	0.28	<0.05	0.10	<0.05	0.60	0.09

< - less than

Martin L. Lay
3/6/79

	E		E-2	
	L 7266		L 8369	
	#1	#2	#1	#2
Ag	0.05	0.06	0.05	0.04
Ba	<1.0	<1.0	*	*
Cd	<0.05	<0.05	<0.05	<0.05
As	0.003	0.004	0.002	0.001
Hg	0.0004	0.0004	*	*
Se	<0.01	<0.01	<0.01	<0.01
Cr	0.13	0.09	0.11	0.09
Pb	2.8	4.8	0.11	0.08

< - less than

* - not complete at reporting time. To be furnished at later date.

Martin L. Keny
3/6/79

ORIGINAL (Red)

HERRON TESTING LABORATORIES, INC.

Section 13

DA 501 12 67

COMMONWEALTH OF PENNSYLVANIA

ORIGINAL (Red) November 18, 1975

772774

SUBJECT Request for Policy Decision
Direct Discharge to Ground Water
U. S. Aluminum Corporation
Marietta Borough, Lancaster County

TO Gary L. Merritt, Chief
Technical Services Unit
Ground Water Section

Thru: James T. Flesher, Chief
Operations Section

FROM Jeff Peffer
Regional Geologist
Harrisburg Region

The above industry generates 20,000 GPD of waste water which has high concentrations of dissolved solids, most of which is potassium chloride. This waste water is currently discharged to an infiltration basin at the east end of the plant complex, on the flood plain of the Susquehanna River. The writer made a field inspection of the area on 11/14/75.

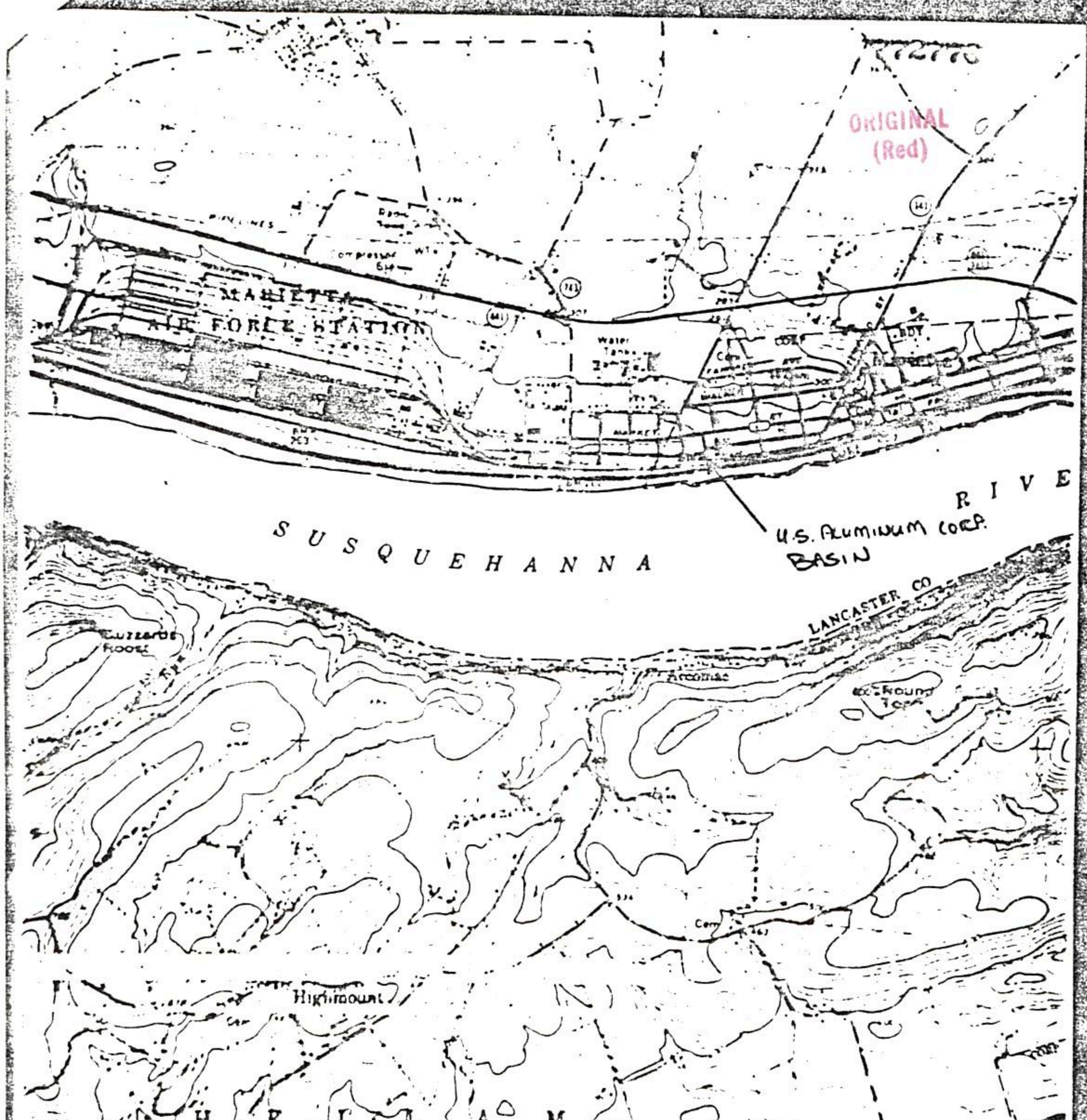
The basin lies approximately 350'north of the river, and is "pinpointed" on the attached copy of a portion of the Columbia West 7½ minute quadrangle. The area is immediately underlain by an undetermined thickness of sandy alluvium. In a gully along a road to the east of the lagoon, orangish-brown sandy silt is exposed. Bedrock mapped as underlying the area is argillaceous dolomite of the Vintage formation. No bedrock outcrops were observed on the date of the writer's field evaluation.

Ground water in the site area is expected to be flowing to the south, towards and discharging to the river. Depending on the nature of the underlying flow system(s) and the depth of alluvium, ground water may have components of flow more or less parallel to the river, along bedrock structure.

At this point, in order for U. S. Aluminum Corporation to receive a permit to discharge this waste to the river, the basin would have to be lined (to meet the impermeability requirement of Chapter 101 of the Rules and Regulations) and a dispersion device (required by Facilities Section) would have to be provided at the discharge point(s).

The applicant's engineer has rightfully questioned whether the existing infiltration basin - ground water mixing zone scheme would not be less detrimental to the environment than a concentrated surface discharge.

In a meeting with the engineer I indicated that concentrated direct discharges to ground water are not in line with current Departmental policy. However, I intimated that, with the concurrence of Central Office Ground Water Section, such a discharge might be permitted (as a direct discharge and not a lagoon) if:


ORIGINAL
(Red)
MARIETTA
AIR FORCE STATION
PIPELINES
Compressor
Water
Tank
SUSQUEHANNA
RIVE
U.S. ALUMINUM CORP.
BASIN
LANCASTER CO
Buzzards
Roost
Accomac
Round
Top
Highmount
HELLAM